

REMARKS

In the Office Action dated March 17, 2008, the Examiner rejected claims 1-23 under 35 U.S.C. § 112, first paragraph, for allegedly lacking enablement of co-polymers having hydrophilic and hydrophobic monomer blocks; rejected claims 13 and 23 under 35 U.S.C. § 112, second paragraph, as being indefinite; rejected claim 15 under 35 U.S.C. § 101 because the claimed recitation of a use results in an improper definition of a process; rejected claims 1-23 under 35 U.S.C. § 102(e) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 6,620,356 to Wong et al. ("Wong"); and rejected claims 1-23 under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over U.S. Patent Application No. 2001/0021764 to Weisse et al. ("Weisse").

By this Reply, Applicant has amended claims 1, 3, 5-7, 13, 14, and 16-18 and has canceled claim 15. Accordingly, claims 1-14 and 16-23 are currently pending in this application. No new matter has been added by this Reply.

The Examiner rejected claims 1-23 under 35 U.S.C. § 112, first paragraph, for allegedly lacking enablement of co-polymers having hydrophilic and hydrophobic monomer blocks. While Applicant disagrees with this rejection, in order to expedite prosecution, Applicant has amended claims 1, 3, 5-7, 13, 14, and 16-18 to overcome this rejection. Thus, Applicant respectfully submits that this rejection has been rendered moot by Applicant's amendment of claims 1, 3, 5-7, 13, 14, and 16-18 by this Reply and asks the Examiner to withdraw this rejection.

The Examiner also rejected claims 13 and 23 under 35 U.S.C. § 112, second paragraph, as being indefinite for allegedly failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Applicant

respectfully submits that this rejection has been rendered moot by Applicant's amendment of claim 13 by this Reply and asks the Examiner to withdraw this rejection.

In addition, the Examiner rejected claim 15 under 35 U.S.C. § 101 because the claimed recitation of a use results in an improper definition of a process. Applicant submits that this rejection has been rendered moot by Applicant's cancellation of claim 15 by this Reply. Accordingly, Applicant respectfully asks the Examiner to withdraw this rejection.

Applicant respectfully traverses the rejection of claims 1-23 under 35 U.S.C. § 102(e) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Wong. Wong does not disclose each and every limitation of amended independent claim 1, for example, and thus, cannot anticipate claim 1. Moreover, Applicant respectfully submits that the Examiner has failed to establish a prima facie case of obviousness because the Examiner has not properly determined the scope and content of the prior art and has not properly ascertained the differences between the prior art and the pending claims. Graham v. John Deere Co., 383 U.S. 1, 17, 148 U.S.P.Q. 459, 467 (1966). Moreover, the Examiner has not established that Wong teaches all the present claim limitations.

The Examiner contends that "all the claims are product by process." (Office Action at 4.) "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). "The structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art, especially . . . where the manufacturing process steps

would be expected to impart distinctive structural characteristics to the final product.” In re Garnero, 412 F.2d 276, 279, 162 USPQ 221, 223 (CCPA 1979). Applicant submits that the Examiner has failed to appreciate the differences between the distinctive structural characteristics of the membrane of the claimed invention and those of the processes disclosed in Wong.

The Examiner contends that “Wong teaches a porous membrane made from blends or block co-polymers of hydrophobic and hydrophilic components by the method of foaming using a foaming gas. See Wong abstract, column 3, line 30 0 column 5, line 12, the table in column 6, and working examples.” Applicant disagrees. Wong does not disclose preparing a membrane by a foaming process, as require by the claimed invention. Instead, Wong discloses membrane preparation by a phase separation process. The structure of a membrane prepared by a the claimed foaming process differs significantly from that of a membrane prepared by the phase separation process of Wong, as described below.

The phase separation process disclosed in Wong provides for a polymer to be dissolved in a solvent and the resulting polymer solution is transferred into a pressure cell. The polymer concentration in the solvent is about 10-25% by weight. The solution is then treated with a gas, such as carbon dioxide, under pressure and temperature conditions. The gas acts as a non-solvent or is sparingly soluble for the polymer, creating an open porous polymer structure resulting from a phase separation. The membranes prepared from the phase separation process disclosed in Wong result in a highly porous structure.

In contrast, in the foaming process recited in amended claim 1, for example, the polymer material is directly contacted with a blowing gas, which is loaded into and dissolved in the pure solvent-free polymer blend material. In the foaming process of amended claim 1, a less porous structure is formed due to pressure release and an increase in temperature, whereby the blowing gas expands. The membranes prepared using the process recited in claim 1, for example, result in structures having low porosity.

Accordingly, the process for preparing a membrane as recited in the claimed invention differs significantly from the process for preparing a membrane disclosed in Wong. More importantly, however, the membranes, or products, created by these different processes have very different structural characteristics. Due to the reduced amount of polymer dissolved in the solvent, the membrane prepared by phase separation as disclosed in Wong, has an overall density in the range between 0.1 g/cm^3 and 0.3 g/cm^3 (see col. 3, ll. 37-40). In fact, all examples disclosed in Wong have a density within this range. To the contrary, membranes created by the foaming process recited in claim 1, for example, have densities in the order of 0.6 g/cm^3 to 1.1 g/cm^3 . Blowing gas being dissolved in the polymer material, which induces foaming by either increase temperature or reducing pressure to form a porous structure, allows the polymer blend to be saturated with blowing gas. This results in membranes having higher densities.

As described above, membranes created by the phase separation process disclosed in Wong have low density and high porosity, while membranes created by the process recited in amended independent claim 1 have much higher densities and much

lower porosities. These structural differences are significant. Thus, Wong does not disclose or suggest either the product made by the process recited in amended independent claim 1. For at least this reason, amended independent claim 1 is allowable over Wong. Accordingly, claims 2-14 and 16-23 are allowable at least due to their dependence from allowable independent claim 1 and due to their additional recitations of novel subject matter.

Applicant respectfully traverses the rejection of claims 1-23 under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Weisse. Weisse does not disclose or suggest each and every limitation of amended independent claim 1, for example, and thus, cannot anticipate claim 1. The Examiner contends that Weisse “teaches a porous membrane made from block co-polymer of sulfonated polysulfone for applications such as dialysis.” (Office Action at 5.) Weisse does not, however, disclose or suggest a “membrane producible by shaping a polymer blend,” as recited in amended independent claim 1, nor does Weisse disclose or suggest a method for making such a membrane. Thus, for at least this reason, amended independent claim 1 is allowable over Weisse. Accordingly, claims 2-14 and 16-23 are allowable at least due to their dependence from allowable independent claim 1 and due to their additional recitations of novel subject matter

In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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